

IN THE CLAIMS:

Please amend the claims as follows:

1-8. (Canceled).

9. (New) An IC chip for reading an image, comprising:

a plurality of image reading photoelectric conversion elements divided into a plurality of groups;

a read selection circuit for sequentially selecting the plurality of image reading photoelectric conversion elements and reading a photoelectric conversion signal from the selected image reading photoelectric conversion element;

an initialization selection circuit for sequentially selecting the plurality of image reading photoelectric conversion elements and initializing the selected image reading photoelectric conversion element;

a plurality of signal output lines by way of which the photoelectric conversion signal is transmitted, each of the plurality of signal output lines corresponding to and independently provided for each of the plurality of groups;

a signal output line switching circuit for sequentially selecting from among the plurality of signal output lines according to a position of the selected image reading photoelectric conversion element;

a logic circuit for controlling the signal output line switching circuit; and

an output circuit for processing the photoelectric conversion signal that is transmitted through the selected signal output and then outputting a resulting signal, the output circuit being connected to the selected signal output line through the signal output line switching circuit,

wherein the signal output line switching circuit switches to a signal output line corresponding to the next group from a signal output line currently selected after a last photoelectric conversion signal in a current group has been read and before a first photoelectric conversion signal in a next group is read.

10. (New) An IC chip for reading an image as claimed in claim 9,

wherein the read selection circuit reads the photoelectric conversion signal from the selected image reading photoelectric conversion element during one period of a clock signal, and

wherein the initialization selection circuit initializes the selected image reading photoelectric conversion element during a last half of said one period and during a first half of a next period of the clock signal.

11. (New) An IC chip for reading an image, comprising:

a plurality of image reading photoelectric conversion elements divided into a plurality of groups;

a first read selection circuit for sequentially selecting the plurality of image reading photoelectric conversion elements and reading a first photoelectric conversion signal from the selected image reading photoelectric conversion element;

a first initialization selection circuit for sequentially selecting the plurality of image reading photoelectric conversion elements and initializing the selected image reading photoelectric conversion element;

a plurality of first signal output lines by way of which the first photoelectric conversion signal is transmitted from the plurality of image reading photoelectric

conversion elements, each of the plurality of first signal output lines corresponding to and independently provided for each of the plurality of first groups;

a plurality of dummy photoelectric conversion elements divided into a plurality of second groups, each of the plurality of dummy photoelectric conversion elements shielded from light and forming an exclusive pair with one of the plurality of image reading photoelectric conversion elements by being arranged in close proximity thereto;

a second read selection circuit for sequentially selecting the plurality of dummy photoelectric conversion elements and reading a second photoelectric conversion signal from the selected dummy photoelectric conversion element;

a second initialization circuit for sequentially selecting the plurality of dummy photoelectric conversion elements and initializing the selected dummy photoelectric conversion element;

a plurality of second signal output lines by way of which the second photoelectric conversion signal is transmitted from the plurality of dummy photoelectric conversion elements, each of the plurality of second signal output lines corresponding to and independently provided for each of the plurality of second groups;

a signal output line switching circuit for sequentially selecting from among the plurality of first signal output lines according to a position of the selected image reading photoelectric conversion element and also sequentially selecting from among the plurality of second signal output lines according to a position of the selected dummy photoelectric conversion element;

a logic circuit for controlling the signal output line switching circuit; and

an output circuit for processing the first and second photoelectric conversion signals transmitted through the selected first and second signal output lines respectively and then outputting a difference therebetween as a resulting signal, the output circuit being connected to the selected first and second signal output lines through the signal output line switching circuit,

wherein, after a last image reading photoelectric conversion element in a first group currently selected and a last dummy photoelectric conversion element in a second group currently selected have been read, and before a first image reading photoelectric conversion element in a first group subsequently selected and a first dummy photoelectric conversion element in a second group subsequently selected are read, the signal output line switching circuit switches selects one of the plurality of first signal output lines corresponding to the first group subsequently selected and one of the plurality of second signal output lines corresponding to the second group subsequently selected.

12. (New) An IC chip for reading an image as claimed in claim 11,

wherein the first read selection circuit reads the first photoelectric conversion signal from the selected image reading photoelectric conversion element during one period of a clock signal, and

the first initialization selection circuit initializes the selected image reading photoelectric conversion element during a last half of said one period and during a first half of a next period of the clock signal,

wherein the second read selection circuit reads the second photoelectric conversion signal from a dummy photoelectric conversion element that forms a pair with

the selected image reading photoelectric conversion element during said one period,
and

the second initialization selection circuit initializes the dummy photoelectric conversion element that forms a pair with the selected image reading photoelectric conversion element during a full period prior to said one period of the clock signal.

13. (New) An image reading device comprising:

one or more IC chip for reading an image, each comprising:

- a plurality of image reading photoelectric conversion elements divided into a plurality of groups;

- a read selection circuit for sequentially selecting the plurality of image reading photoelectric conversion elements and reading a photoelectric conversion signal from the selected image reading photoelectric conversion element;

- an initialization selection circuit for sequentially selecting the plurality of image reading photoelectric conversion elements and initializing the selected image reading photoelectric conversion element;

- a plurality of signal output lines by way of which the photoelectric conversion signal is transmitted, each of the plurality of signal output lines corresponding to and independently provided for each of the plurality of groups;

- a signal output line switching circuit for sequentially selecting from among the plurality of signal output lines according to a position of the selected image reading photoelectric conversion element;

a logic circuit for controlling the signal output line switching circuit;
an output circuit for processing the photoelectric conversion signal that is transmitted through the selected signal output and then outputting a resulting signal, the output circuit being connected to the selected signal output line through the signal output line switching circuit;

a clock input terminal by way of which a clock signal is fed in;

a start trigger signal input terminal by way of which a start trigger signal for subsequently scanning an image being read is fed in from an IC chip for reading an image in a previous stage; and

a start trigger signal output terminal by way of which a start trigger signal for sequentially scanning the image being read is fed out to an IC chip for reading an image in a following stage,

wherein the signal output line switching circuit switches to a signal output line corresponding to a next group from a signal output line currently selected after a last photoelectric conversion signal in a current group has been read and before a first photoelectric conversion signal in a next group is read,

wherein the image reading device further comprises an A/D converter for converting a signal output from the output circuit of said one or more IC chips into a digital signal.

14. (New) An image reading device comprising:

one or more IC chip for reading an image, each comprising:

a plurality of image reading photoelectric conversion elements divided into a plurality of first groups;

a first read selection circuit for sequentially selecting the plurality of image reading photoelectric conversion elements and reading a first photoelectric conversion signal from the selected image reading photoelectric conversion element;

a first initialization selection circuit for sequentially selecting the plurality of image reading photoelectric conversion elements and initializing the selected image reading photoelectric conversion element;

a plurality of first signal output lines by way of which the photoelectric conversion signal is transmitted from the plurality of image reading photoelectric conversion elements, each of the plurality of first signal output lines corresponding to and independently provided for each of the plurality of first groups;

a plurality of dummy photoelectric conversion elements divided into a plurality of second groups, each of the plurality of dummy photoelectric conversion elements shielded from light and forming an exclusive pair with one of the plurality of image reading photoelectric conversion elements by being arranged in close proximity thereto;

a second read selection circuit for sequentially selecting the plurality of dummy photoelectric conversion elements and reading a second photoelectric conversion signal from the selected dummy photoelectric conversion element;

a second initialization selection circuit for sequentially selecting the plurality of dummy photoelectric conversion elements and initializing the selected dummy photoelectric conversion element;

a plurality of second signal output lines by way of which the second photoelectric conversion signal is transmitted from the plurality of dummy photoelectric conversion elements, each of the plurality of second signal output lines corresponding to and independently provided for each of the plurality of second groups;

a signal output line switching circuit for sequentially selecting from among the plurality of first signal output lines according to a position of the selected image reading photoelectric conversion element and also sequentially selecting from among the plurality of second signal output lines according to a position of the selected dummy photoelectric conversion element;

a logic circuit for controlling the signal output line switching circuit;

an output circuit for processing the first and second photoelectric conversion signals transmitted through the selected first and second signal output lines respectively and then outputting a difference therebetween as a resulting signal, the output circuit being connected to the selected first and second signal output lines through the signal output line switching circuit;

a clock input terminal by way of which a clock signal is fed in;

a start trigger signal input terminal by way of which a start trigger signal for subsequently scanning an image being read is fed in from an IC chip for reading an image in a previous stage; and

a start trigger signal output terminal by way of which a start trigger signal for sequentially scanning the image being read is fed out to an IC chip for reading an image in a following stage,

wherein, after a last image reading photoelectric conversion element in a first group currently selected and a last dummy photoelectric conversion element in a second group currently selected have been read, and before a first image reading photoelectric conversion element in a first group subsequently selected and a first dummy photoelectric conversion element in a second group subsequently selected are read, the signal output line switching circuit selects one of the plurality of first signal output lines corresponding to the first group subsequently selected and one of the plurality of second signal output lines corresponding to the second group subsequently selected,

wherein the image reading device further comprises an A/D converter for converting a signal output from the output circuit of said one or more IC chips into a digital signal.